

Effect of Acetylcholine on the Microvibration of the Body Surface

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In our previous studies,¹⁾²⁾ as to the microvibration (MV) of the body surface in the rabbit, OZAKI¹⁾ and FUJIWARA²⁾ have reported that adrenaline and noradrenaline were capable of augmenting and inhibiting the MV according to small and large doses injected, respectively. It was suggested in their experiments that the inhibitory effect of adrenaline and noradrenaline on the MV might be attributed to the cardioinhibitory effect caused by injecting large doses of them.

The present study, furthermore, aims to clarify the effect of acetylcholine on the MV of the body surface. Experiments were performed on rabbits nembutalized lightly, whose MVs were recorded at the same time as the electroencephalograms (EEGs), electrocardiograms (EKGs) and apexcardiograms (ACGs).

With intravenous injection of acetylcholine into rabbits, the MV, EEG and ACG were observed to show the augmentative and inhibitory changes corresponding to (1-5 μ g/kg) and large (30-50 μ g/kg) doses of acetylcholine administered, respectively (Fig. 1, L and R). The augmentative effect of acetylcholine to the MV was, however, not prevented by moderate doses of atropine, but by adequate doses of tubocurarine. On the other hand, the inhibitory effect of acetylcholine was clearly abolished by moderate doses of atropine.

From these experimental results, it seems likely that the augmentative effect of acetylcholine on the MV is due to the nicotine-like action of acetylcholine, while the inhibitory effect of acetylcholine the muscarine-like action of it.

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REFERENCES

- 1) OZAKI, T., : Some evidences on Minor Tremor, Proc. XIIth Ann. Meet Japan EEG Soc., 155, 1965.
- 2) FUZIWARA, K., : Effects of adrenaline and noradrenaline upon the microvibration on the body surface, *Acta Med. Nagasaki.*, 11, 72-83, 1966.

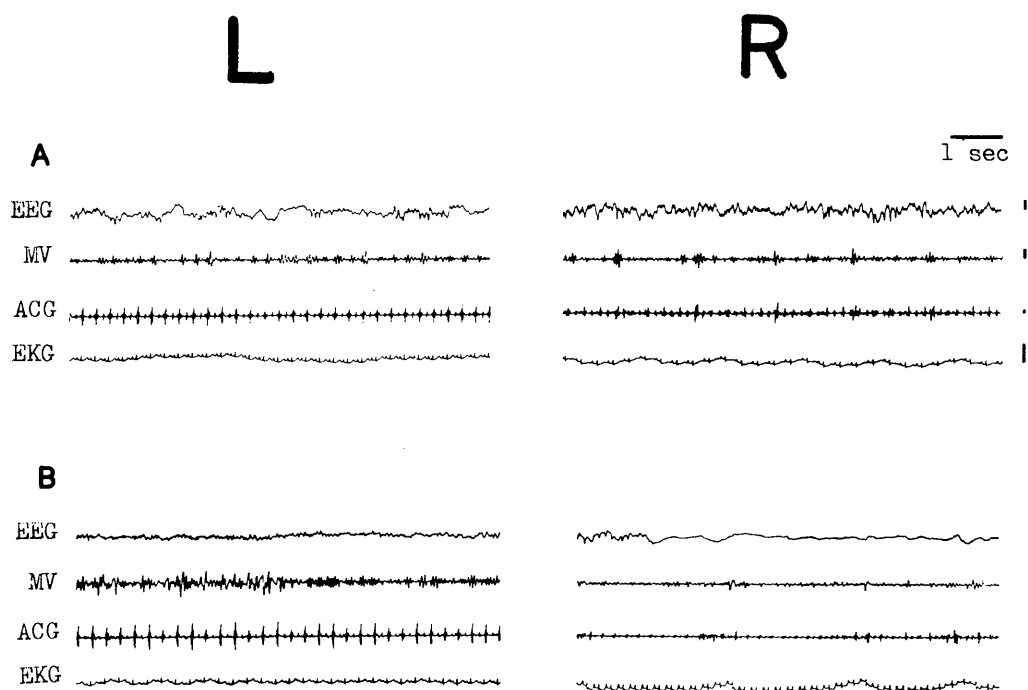


Fig. 1. EEG (1. fronto-parietal), MV (r. thigh), ACG (apex beat) and EKG (lead II) tracing before (A) and after (B) the intravenous injection of acetylcholine in a dose of 5 μ g/kg (L) or 50 μ g/kg (R).

A : Control EEG, MV, ACG and EKG before the injection.

B : EEG, MV, ACG and EKG 30 seconds after the injection.

Each calibration of right side shows 50 μ V in the EEG and 1mV in the MV, ACG and EKG tracings, respectively.